REMARKS

The Examiner's continued attention to the present application is noted with appreciation.

The Examiner rejected claims 1-20 under 35 U.S.C. § 112, first paragraph, as not enabled. The rejection is traversed. The Examiner is directed to MPEP § 2164.08, which states that: "The determination of the propriety of a rejection based upon the scope of a claim relative to the scope of the enablement involves two stages of inquiry. The first is to determine how broad the claim is with respect to the disclosure. The entire claim must be considered. The second inquiry is to determine if one skilled in the art is enabled to make and use the entire scope of the claimed invention without undue experimentation."

As to step 1, note that the claims at issue are directed to an apparatus and method employing the combination of a tachometer, compensation electronics receiving input from the tachometer and a motor, and drive electronics providing output to the motor. As to step 2, note that Fig. 5 discloses a complete circuit diagram for an embodiment of the invention damping an approximate 400 Hz belt mode in conjunction with a DC torque motor and a limited angle tachometer. This is a circuit diagram, not a block Matrix/Matlab diagram, for the complete compensation and drive electronics and shows the necessary connections to the tachometer and the drive motor. It is therefore ridiculous to assert that any significant experimentation, let alone undue experimentation, is required to make an embodiment of the invention. Note that Hughes '254 did not provide an actual circuit diagram.

The Matrix/Matlab diagrams (Figs. 1-4) provide more general information about the embodiment of the invention illustrated. A primary patentable aspect of the present invention is shown by the contrast between Fig. 3 of the present application and Fig. 7 of Hughes `254, which show the filter of the prior art and new active damper, respectively, that precedes the damper current loop. While each particular implementation of an active damper will be different depending on the nature of the mirror being

dampened and its expected environments, Fig. 3 shows to one of ordinary skill in the art the manner in which the tachometer is employed and the concomitant elimination of previously needed low pass filters.

One of ordinary skill in the art would not need to engage in undue experimentation to reproduce the present invention from the present application.

The Examiner rejected claims 1 and 11 under 35 U.S.C. § 102(e) as being anticipated by Predina. The rejection is traversed in view of the attached Rule 131 declaration by Applicant, this time with the missing Exhibit A. The courtesy of a telephone call regarding the missing Exhibit would have been appreciated.

The Examiner rejected claims 1-20 under 35 U.S.C. § 103(a) as being unpatentable over Hughes `254 in view of Harris et al. ("Harris"). The rejection is traversed.

Hughes `254 is certainly pertinent, but Harris has nothing to do with the technology at issue. Harris discloses the use of a tachometer in aiding acceleration/deceleration of a magnetic tape. Harris contains no teaching or suggestion (nor does Hughes `254) that a tachometer would be useful in the problem of eliminating drive modes in an optical system. Absent such teaching or suggestion, the Examiner is engaging merely in impermissible hindsight concerning the patentability of the invention.

Furthermore, Hughes `254 teaches away from the present invention. As discussed in Hughes `254 at col. 3, lines 13-51, one or more accelerometers measuring mirror acceleration are employed to counteract the effects of vibra-acoustic noise and belt mode resonant amplification, with a concomitant great degree of complexity. The present invention rather employs a tachometer measuring speed (not acceleration) of a drive motor. The combination of Hughes `254 with Harris results in a complex system with both accelerometers and a tachometer. There is no suggestion in Hughes `254 that reducing complexity and eliminating acceleration measurement could result in an effective active damping system.

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An earnest attempt has been made to respond to each and every ground of rejection advanced by the Examiner. However, should the Examiner have any queries, suggestions or comments relating to a speedy disposition of the application, the Examiner is invited to call the undersigned.

Reconsideration and allowance are respectfully requested.

Respectfully submitted,

PEACOCK MYERS, P.C.

By:_

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Disclosure No. FM-1)1818

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| DISCLOSURE OF | NEW | TEC | HNOLOGY | | | | | | |
| | | | | | | AU . | | | |
| DESCRIPTIVE | TITLE | : Acti | ve Belt Mode Dar | mper | / | 9 | 18 | | |
| | | | | | 6 | | | | |
| 1. ORIGINATOR(S)/INV | ENTOR(S | 9) | | | | -40.4 | | | |
| NAME John G. Hughes | | | | NAME | | | | | |
| ADDRESS | · · · · · · | | | ADDRESS | | | | | |
| 1472 Southwind Dr. | | | | 1.00.000 | | (V) | | | |
| CITY | | ZIP | PHONE | CITY | | 1 | PHONE | | |
| Casselberry, FL | | 32707 | 356-6945 | | | | | | |
| SS# | 1 | | MP# | SS# | | EMP# | MP# | | |
| <u> </u> | 58445 | | 205 | | , | • | | | |
| 3. DETAILED DESCRIPTION The active damper consists the very high Q belt mode | IIZED MIN | lain bow inotor, to | Tracer and Comi | anche. and materials weed Atta ensation electronic | ics and drive is in the mod | electronics. le that are i | . It provides damping of nduced thermally and by | | |
| Notch filters must be tune techniques suffer from the damper. | ed to the ermal se | structu nsitivity | ral mode. Slight | mismatches can o | cause contro | I loop instat an be achiev | oility. Passive red with the active | | |
| 5. EARLIEST DATE OF (| | NAME ADDRESS ZIP PHONE S2707 358-6945 EMP.# MP# S8445 205 INVENTION (Secinctiv describe in approximately 40 to 50 words the precise idea or investion) gr of a motor, teachometer, compensation electronics and drive electronics provides damping of illized gimbals. ON (Explain how idea words, basic design and materials used. Attach additional pages of description as well as absorbes or photox.) is of a motor, teachometer, compensation electronics and drive electronics. It provides damping of virtually eliminating it. It is insensitive to variations in the mode that are induced thermally and by Further, it does not impact designable low frequency operation of the gimbal. RIOR PRACTICES (Indicate differences and advantages over prior at, supredicted results and any new boosfits.) to the structural mode. Slight mismatches can cause control loop instability. Passive mal sensitivity and do not provide the level of damping that can be achieved with the active DNCEPTION: WHERE CONCEIVED: LM E&M WORK ON THIS INVENTION, WAS ANY TIME AND/OR MATERIAL CHARGED: NO Heap what Contract No.? | | | | | | | |
| 6. IN CONNECTION WIT | H WORK | ON TI | HIS INVENTION, | WAS ANY TIME | AND/OR M | ATERIAL C | HARGED: | | |
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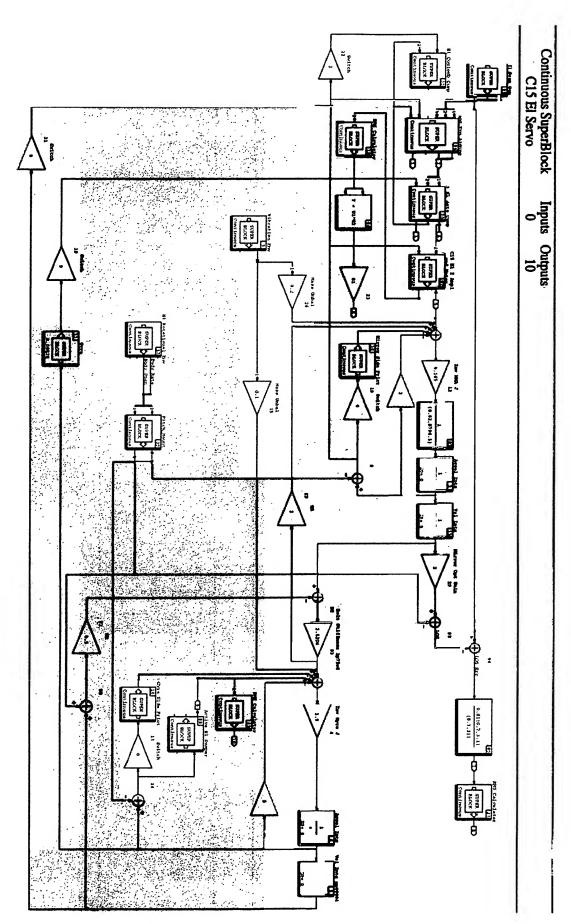
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Exhibit A BEST AVAILABLE COPY

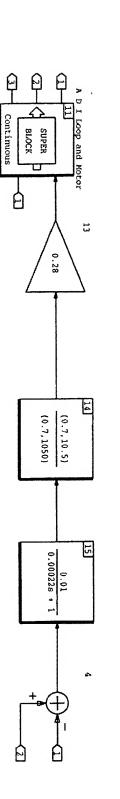
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| a. Dave Sherard | | | | | | 2 | | | |
| b. | | | | | | · : | | | |
| * (1) Making rough sketches, (2) Describing construction | etc., explaining ske and operations or | tches Uly | (3) Showing written (4) Demonstrating a | description model | (5) 0 | ther evidence of | conception | ı, explain | |
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| 12. OTHER DISCLOS | URES: Oral or | written disclosures to wit | ness(es) not mentioned | previously, especia | lly to those or | tride the compar | ıy. | | |
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| 13. ITEMIZATION O | F DOCUMEN | TS BEING ATTAC | CHED TO THIS | DISCLOSURE | • | . | | | |
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| 14. INVENTOR(S) AN | D 2 OR 3 WI | INESSES SHOUL | <u>D SIGN BELOW</u> | SIGN BELOW IN SPACES INDICATED: Witnesses Signature: | | | | Dates | |
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